

## WE CLAIM:

1. An emitter, comprising:

a light source which emits a first spectrum of light; and

a conversion material region formed separately from said light source and including conversion particles, said conversion material region positioned in proximity to said light source such that at least some of said light source light passes through said conversion material region, said conversion particles absorbing at least some of said light source light passing through said conversion material region and emitting a second spectrum of light.

2. The emitter of claim 1, wherein said light source emits said first spectrum of light along a plurality of light paths extending through said conversion material region, each light path extending through a substantially equal amount of conversion particles.

3. The emitter of claim 1, wherein said conversion particles are distributed in said conversion material region such that said conversion particles emit said second spectrum of light at a uniform color and intensity.

4. The emitter of claim 1, wherein said conversion particles emit said second spectrum of light at a uniform color and intensity.

5. The emitter of claim 1, wherein said conversion material region includes scattering particles which redirect at least some of said first and second spectrum of light.

6. The emitter of claim 1, wherein said conversion material region comprises a glass lens.

7. The emitter of claim 6, wherein said glass lens is formed separately from said light source and bonded proximate to said light source.

8. The emitter of claim 1, wherein said conversion material region comprises a phosphor loaded cap.

9. The emitter of claim 8, wherein said phosphor loaded cap is shaped to fit closely over one or more of the surfaces of said emitter such that said light source light passing through said phosphor cap passes through substantially the same amount of said conversion particles.

10. The emitter of claim 8, wherein said phosphor loaded cap includes a perforation for receiving an electrical contact to said light source.

11. The emitter of claim 10, wherein said perforation is at least partially filled with at least one of conversion particles and scattering particles.

12. The emitter of claim 8, wherein said phosphor loaded cap is formed separately from said light source and bonded proximate to at least one of the surfaces of said light source.

13. The emitter of claim 1, further comprising a submount, said light source mounted to said submount and said conversion material region mounted to said submount.

14. The emitter of claim 1, wherein said conversion material region is hemispheric shaped and said light source is arranged to emit light toward the base of and through said conversion material region.

15. The emitter of claim 1, wherein said light source comprises a light emitting diode.

16. The emitter of claim 1, emitting a spectrum of light that is a combination of said first and second spectrums of light.

17. The emitter of claim 1, wherein said conversion material region is positioned in relation to said light sources such that there is a space between the two.

18. An emitter, comprising:

a light source which emits a first spectrum of light; and

a conversion material region formed separately from said light source and positioned proximate to said light source, said conversion material region arranged to absorb at least some of the light emitted by said light source and re-emit light at a second spectrum of light, said emitter emitting a combination of said first and second spectrums of light in a uniform third spectrum of light.

19. The emitter of claim 18, wherein said conversion material region is separable from said position proximate to said light source.

20. The emitter of claim 18, further comprising a submount, wherein said light source is positioned on a first surface of said submount and said conversion material region positioned on a second surface of said submount.

21. The emitter of claim 18, wherein said submount is configured to reflect some of said first and second spectrums of light.

22. The emitter of claim 20, wherein said conversion material region comprises a lens, said lens being bonded to said second surface of said submount, said second surface being above said first surface.

23. The emitter of claim 20, wherein said at least one of said submount surface reflects some of the first and second spectrums of light to said lens.

24. The emitter of claim 20, wherein said submount includes one of a cup-shaped submount and a flat submount.

25. The emitter of claim 22, wherein said lens includes said conversion material region and a clear material region.

26. The emitter of claim 22, wherein said lens is shaped to fit within said submount.

27. The emitter of claim 18, wherein said conversion material region comprises a phosphor loaded cap.

28. The emitter of claim 27, wherein said phosphor loaded cap is shaped to fit the shape of said light source.

29. The emitter of claim 27, wherein said phosphor loaded cap is formed separately from said light source and bonded proximate to said light source.

30. The emitter of claim 18, wherein said conversion material region is positioned in relation to said light source such that there is a space between the two, said space chosen to obtain substantially uniform emission of said third spectrum of light.

31. The emitter of claim 18, wherein said conversion material region is positioned in relation to said light source such that there is a space between the two, said space chosen to provide said third spectrum of light with at least one of a desired color and intensity.

32. A method of fabricating an emitter, comprising:  
    providing a light source;  
    providing a separately formed conversion material region which includes conversion particles; and  
    bonding said conversion material region proximate to said light source, said conversion material region being positioned so that at least some of the light emitted from said light source at different angles flows through said conversion material region and through the substantially the same amount of conversion particles.

33. The method of claim 32, further including a step of providing a submount, said light source being bonded to a first surface of said submount.

34. The method of claim 32, wherein said conversion particles are distributed throughout said conversion material region so that said emitter emits at least one of the same color and intensity of light.

35. The method of claim 32, wherein the step of providing said conversion material region includes a step

of providing a lens which includes said conversion material region.

36. The method of claim 33, wherein the step of bonding said conversion material region proximate to said light source includes a step of bonding said lens to one of said first surface and a second surface of said submount.

37. The method of claim 35, wherein the step of providing said lens includes a step of providing a lens with an opening configured to at least partially surround said light source.

38. The method of claim 33, wherein the step of providing said submount includes a step of providing one of a flat submount and a cup-shaped submount.

39. The method of claim 33, wherein said submount includes a cup-shaped submount with a third side configured to reflect at least a portion of the light re-emitted from said conversion material region.

40. The method of claim 32, wherein the step of providing said conversion material region includes a step of providing a phosphor loaded cap which includes said conversion material region.

41. The method of claim 40, wherein the step of providing said phosphor loaded cap includes a step of

providing a phosphor loaded cap which is shaped to at least partially surround said light source.

42. The method of claim 40, wherein the step of providing said phosphor loaded cap includes step of providing a phosphor loaded cap with a perforation for engaging a contact.

43. The method of claim 42, further including a step of filling said perforation with at least one of conversion particles and scattering particles.